

## §§ 4280.194–4280.199

applicable procedures specified in §§ 4280.112 and 4280.129.

(e) *Interest rate and terms of loan.* The interest rate and terms of the loan for the loan portion of the combined funding request will be determined based on the procedures specified in §§ 4280.124 and 4280.125 for guaranteed loans.

(f) *Other provisions.* In addition to the requirements specified in paragraphs (a) through (e) of this section, the combined funding request shall be subject to the other requirements specified in this subpart, including, but not limited to, processing and servicing requirements, as applicable, as described in paragraphs (f)(1) and (2) of this section.

(1) All other provisions of Section A of this subpart shall apply to the grant portion of the combined funding request.

(2) All other provisions of Section B of this subpart shall apply to the guaranteed loan portion of the combined funding request.

## §§ 4280.194–4280.199 [Reserved]

### § 4280.200 OMB control number.

The information collection requirements contained in the regulation have been approved by the Office of Management and Budget (OMB) and have been assigned OMB control number 0570–0050. A person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

### APPENDIX A TO PART 4280—TECHNICAL REPORTS FOR PROJECTS WITH TOTAL ELIGIBLE PROJECT COSTS OF \$200,000 OR LESS

The Technical Report for projects with total eligible project costs of \$200,000 or less must demonstrate that the project design, procurement, installation, startup, operation, and maintenance of the renewable energy system or energy efficiency improvement will operate or perform as specified over its design life in a reliable and a cost-effective manner. The Technical Report must also identify all necessary project agreements, demonstrate that those agreements will be in place, and that necessary project equipment and services are available over the design life.

All technical information provided must follow the format specified in Sections 1 through 10 of this appendix. Supporting information may be submitted in other for-

mat. Design drawings and process flowcharts are encouraged as exhibits. A discussion of each topic is not necessary if the topic is not applicable to the specific project. Questions identified in the Agency's technical review of the project must be answered to the Agency's satisfaction before the application will be approved. The applicant must submit the original technical report plus one copy to the Rural Development State Office. Depending on the level of engineering required for the specific project or if necessary to ensure public safety, the services of a licensed professional engineer or a team of licensed professional engineers may be required.

### SECTION 1. BIOENERGY

The technical requirements specified in this section apply to bioenergy projects, which are, as defined in § 4280.103, renewable energy systems that produce fuel, thermal energy, or electric power from a biomass source, other than an anaerobic digester project.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940–20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate evidence of the availability of the renewable resource required for the system to operate as designed. Indicate the type, quantity, quality, and seasonality of the biomass resource, including harvest and storage, where applicable. Where applicable, indicate shipping or receiving method and required infrastructure for shipping. For proposed projects with an established resource, provide a summary of the resource.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as

to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system;

(5) Describe the expected electric power, fuel production, or thermal energy production of the proposed system as rated and as expected in actual field conditions. For systems with a capacity of more than 20 tons per day of biomass, address performance on a monthly and annual basis. For small projects such as a commercial biomass furnace or pelletizer of up to 5 tons daily capacity, proven, commercially available devices need not be addressed in detail. Describe the uses of or the market for electricity, heat, or fuel produced by the system;

(6) Discuss the impact of reduced or interrupted biomass availability on the system process; and

(7) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate that the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a state-

ment from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

## SECTION 2. ANAEROBIC DIGESTER PROJECTS

The technical requirements specified in this section apply to anaerobic digester projects, which are, as defined in §4280.103, renewable energy systems that use animal waste and other organic substrates to produce thermal or electrical energy via anaerobic digestion.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the amount of digestible substrate resource available. Indicate the source of the data and assumptions. Indicate the substrates used as digester inputs, including animal wastes, food-processing wastes, or other organic wastes in terms of type, quantity,

seasonality, and frequency of collection. Describe any special handling of feedstock that may be necessary. Describe the process for determining the feedstock resource. Show the digestion conversion factors and calculations used to estimate biogas production and heat or power production.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system;

(5) Describe the expected electric power, fuel production, or thermal energy production of the proposed system as rated and as expected in actual field conditions. Describe the uses of or the market for electricity, heat, or fuel produced by the system; and

(6) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a state-

ment from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

### SECTION 3. GEOTHERMAL, ELECTRIC GENERATION

The technical requirements specified in this section apply to electric generation geothermal projects, which are, as defined in § 4280.103, systems that use geothermal energy to produce high pressure steam for electric power production.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credential for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits, including any permits or agreements required for well construction and for disposal or re-injection of cooled geothermal waters and the schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate evidence of the availability of the renewable resource required for the system to operate as designed. Indicate the

quality of the geothermal resource, including temperature, flow, and sustainability and what conversion system is to be installed. Describe any special handling of cooled geothermal waters that may be necessary. Describe the process for determining the geothermal resource, including measurement setup for the collection of the geothermal resource data. For proposed projects with an established resource, provide a summary of the resource and the specifications of the measurement setup.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system;

(5) Describe the expected electric power, fuel production, or thermal energy production of the proposed system as rated and as expected in actual field conditions. Describe the uses of or the market for electricity, heat, or fuel produced by the system; and

(6) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate that the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a

manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 4. GEOTHERMAL, DIRECT USE

The technical requirements specified in this section apply to direct use geothermal projects, which are, as defined in §4280.103, systems that use thermal energy directly from a geothermal source.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits, including any permits or agreements required for well construction and for disposal or re-injection of cooled geothermal waters and the schedule for securing those agreements and permits.

(2) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate evidence of the availability of the renewable resource required for the system to operate as designed. Indicate the quality of the geothermal resource, including temperature, flow, and sustainability and what direct use system is to be installed. Describe any special handling of cooled geothermal waters that may be necessary. Describe the process for determining the geothermal resource, including measurement

setup for the collection of the geothermal resource data. For proposed projects with an established resource, provide a summary of the resource and the specifications of the measurement setup.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

- (1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;
- (2) List possible suppliers and models of major pieces of equipment;
- (3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;
- (4) Provide one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system;
- (5) Describe the expected thermal energy production of the proposed system as rated and as expected in actual field conditions. Describe the uses of, or the market for, heat produced by the system; and
- (6) Describe the project site and address issues such as proximity to the load, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work

rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 5. HYDROGEN

The technical requirements specified in this section apply to hydrogen projects, which are, as defined in §4280.103, renewable energy systems that produce hydrogen, or a renewable energy system that uses mechanical or electric power or thermal energy from a renewable resource using hydrogen as an energy transport medium.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the type, quantity, quality, and seasonality of the local renewable resource that will be used to produce the hydrogen.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure

public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

- (1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;
  - (2) List possible suppliers and models of major pieces of equipment;
  - (3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;
  - (4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system; and
  - (5) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.
- (e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.
- (f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.
- (g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.
- (h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.
- (i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

- (1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

- (2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 6. SOLAR, SMALL

The technical requirements specified in this section apply to small solar electric projects and small solar thermal projects, as defined in § 4280.103.

Small solar electric projects are those for which the rated power of the system is 10kW or smaller. Small solar electric projects are either stand-alone (off grid) or interconnected to the grid at less than 600 volts (on grid).

Small solar thermal projects are those for which the rated storage volume of the system is 240 gallons or smaller, or which have a collector area of 1,000 square feet or less.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the amount of solar resource available. Indicate the source of the solar data and assumptions.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

- (1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;
- (2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system; and

(5) Describe the project site and address issues such as solar access, orientation, proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate that the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 7. SOLAR, LARGE

The technical requirements specified in this section apply to large solar electric projects and large solar thermal projects, as defined in § 4280.103.

Large solar electric systems are those for which the rated power of the system is larger than 10kW. Large solar electric systems are either stand-alone (off grid) or interconnected to the grid (on grid).

Large solar thermal systems are those for which the rated storage volume of the system is greater than 240 gallons or that have a collector area of more than 1,000 square feet.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credential for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the amount of solar resource available. Indicate the source of the solar data and assumptions.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or

schematics as required showing all major installed structural, mechanical, and electrical components of the system; and

(5) Describe the project site and address issues such as solar access, orientation, proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 8. WIND, SMALL

The technical requirements specified in this section apply to small wind systems, which are, as defined in §4280.103, wind energy systems for which the rated power of the wind turbine is 100kW or smaller and with a generator hub height of 120 feet or

less. Small wind systems are either stand-alone or connected to the local electrical system at less than 600 volts.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where required and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the amount of local wind resource where the small wind turbine is to be installed. Indicate the source of the wind data and assumptions.

(d) *Design and engineering.* Applicants must certify that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide a one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system; and

(5) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a

statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 9. WIND, LARGE

The technical requirements specified in this section apply to large wind systems, which are, as defined in §4280.103, wind energy projects for which the rated power of the individual wind turbine(s) is larger than 100kW.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional.

(b) *Agreements, permits, and certifications.* (1) Identify all necessary agreements and permits required for the project and the status and schedule for securing those agreements and permits.

(2) For systems planning to interconnect with a utility, describe the utility's system interconnection requirements, power purchase arrangements, or licenses where re-

quired and the anticipated schedule for meeting those requirements and obtaining those agreements. This is required even if the system is installed on the customer side of the utility meter. For systems planning to utilize a local net metering program as their interconnection agreement, describe the applicable local net metering program.

(3) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Resource assessment.* Provide adequate and appropriate data to demonstrate the amount of local wind resource where the large wind turbine is to be installed. Indicate the source of the wind data and assumptions. Projects greater than 500kW must obtain wind data from the proposed project site. For such projects, describe the proposed measurement setup for the collection of the wind resource data. For proposed projects with an established wind resource, provide a summary of the wind resource and the specifications of the measurement setup. Large wind systems larger than 500kW in size will typically require at least 1 year of on-site monitoring. If less than 1 year of data is used, the qualified meteorological consultant must provide a detailed analysis of correlation between the site data and a nearby long-term measurement site.

(d) *Design and engineering.* Applicants must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards. In addition, applicants must:

(1) Provide authoritative evidence that the system will be designed and engineered so as to meet its intended purpose;

(2) List possible suppliers and models of major pieces of equipment;

(3) Provide a description of the components, materials, or systems to be installed. Include the location of the project;

(4) Provide one-line diagram for the electrical interconnection. Provide diagrams or schematics as required showing all major installed structural, mechanical, and electrical components of the system; and

(5) Describe the project site and address issues such as proximity to the load or the electrical grid, unique safety concerns, and whether special circumstances exist.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed and be able to identify impacts of any delays on the project completion. The applicant must submit a statement certifying that the project will be

completed within 3 years from the date of approval.

(f) *Project economic assessment.* Provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the system to operate as designed over the design life. State the design life of the system.

(1) Provide information on all system warranties. A minimum 3-year warranty for equipment and a 10-year warranty on design are expected.

(2) If the project has any unique operation and maintenance issues, describe them.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and disposing of project components and associated wastes at the end of their useful lives.

#### SECTION 10. ENERGY EFFICIENCY IMPROVEMENTS

The technical requirements specified in this section apply to energy efficiency improvement projects, which are, as defined in § 4280.103, improvements to a facility, building, or process that reduces energy consumption.

(a) *Qualifications of key project service providers.* List all key project service providers. If one or more licensed professionals are involved in the project, provide the credentials for each professional. For projects with total eligible project costs greater than \$50,000, also discuss the qualifications of the energy auditor, including any relevant certifications by recognized organizations or bodies.

(b) *Agreements, permits, and certifications.* (1) The applicant must certify that they will comply with all necessary agreements and permits required for the project. Indicate the

status and schedule for securing those agreements and permits.

(2) Identify all environmental issues, including any compliance issues associated with or expected as a result of the project on Form RD 1940-20, "Request for Environmental Information," and in compliance with 7 CFR part 1940, subpart G, of this title.

(c) *Energy assessment.* (1) For all energy efficiency improvement projects, provide adequate and appropriate evidence of energy savings expected when the system is operated as designed.

(2) For energy efficiency improvement projects with total eligible project costs greater than \$50,000, an energy audit must be conducted. An energy audit is a written report by an independent, qualified party that documents current energy usage, recommended potential improvements and their costs, energy savings from these improvements, dollars saved per year, and simple payback period in years (total costs divided by annual dollars of energy savings). The methodology of the energy audit must meet professional and industry standards. The energy audit must cover the following:

(i) *Situation report.* Provide a narrative description of the facility or process, its energy system(s) and usage, and activity profile. Also include price per unit of energy (electricity, natural gas, propane, fuel oil, renewable energy, etc.) paid by the customer on the date of the audit. Any energy conversion should be based on use rather than source.

(ii) *Potential improvements.* List specific information on all potential energy-saving opportunities and their costs.

(iii) *Technical analysis.* Discuss the interactions among the potential improvements and other energy systems.

(A) Estimate the annual energy and energy costs savings expected from each improvement identified in the potential project.

(B) Calculate all direct and attendant indirect costs of each improvement.

(C) Rank potential improvement measures by cost-effectiveness.

(iv) *Potential improvement description.* Provide a narrative summary of the potential improvement and its ability to provide needed benefits, including a discussion of non-energy benefits such as project reliability and durability.

(A) Provide preliminary specifications for critical components.

(B) Provide preliminary drawings of project layout, including any related structural changes.

(C) Document baseline data compared to projected consumption, together with any explanatory notes. When appropriate, show before-and-after data in terms of consumption per unit of production, time or area. Include at least 1 year's bills for those energy sources/fuel types affected by this project.

Also submit utility rate schedules, if appropriate.

(D) Identify significant changes in future related operations and maintenance costs.

(E) Describe explicitly how outcomes will be measured.

(d) *Design and engineering.* The applicant must submit a statement certifying that their project will be designed and engineered so as to meet the intended purpose, will ensure public safety, and will comply with applicable laws, regulations, agreements, permits, codes, and standards.

(1) Identify possible suppliers and models of major pieces of equipment.

(2) Describe the components, materials, or systems to be installed. Include the location of the project.

(e) *Project development schedule.* Provide a project schedule in an appropriate level of detail that will demonstrate the project can be adequately managed. The applicant must submit a statement certifying that the project will be completed within 2 years from the date of approval.

(f) *Project economic assessment.* For projects with total eligible project costs greater than \$50,000, provide an analysis of the proposed project to demonstrate its financial performance, including the calculation of simple payback. The analysis should include applicable investment incentives, productivity incentives, loans and grants, and expected energy offsets or sales on a monthly and annual basis. In addition, provide other information necessary to assess the project's cost effectiveness.

(g) *Equipment procurement.* Include a statement from the applicant certifying that "open and free" competition will be used for the procurement of project components in a manner consistent with the requirements of 7 CFR part 3015 of this title.

(h) *Equipment installation.* The project must be installed in accordance with applicable local, State, and national building and electrical codes and regulations. Include a statement from the applicant certifying that equipment installation will be made in accordance with all applicable safety and work rules. Upon successful system installation and following established operation, the successful applicant must deliver invoices and evidence of payment.

(i) *Operations and maintenance.* Identify any unique operations and maintenance requirements of the project necessary for the improvement(s) to perform as designed over the design life. State the design life of the improvement(s). Provide information regarding component warranties.

(j) *Dismantling and disposal of project components.* Describe a plan for dismantling and proper disposal of the project components and associated wastes at the end of their useful lives.

# APPENDIX B TO PART 4280—TECHNICAL REPORTS FOR PROJECTS WITH TOTAL ELIGIBLE PROJECT COSTS GREATER THAN \$200,000

The Technical Report for projects with total eligible project costs greater than \$200,000 (and for any other project that must submit a Technical Report under this appendix) must demonstrate that the project design, procurement, installation, startup, operation, and maintenance of the renewable energy system or energy efficiency improvement will operate or perform as specified over its design life in a reliable and a cost-effective manner. The Technical Report must also identify all necessary project agreements, demonstrate that those agreements will be in place, and that necessary project equipment and services are available over the design life.

All technical information provided must follow the format specified in Sections 1 through 10 of this appendix. Supporting information may be submitted in other formats. Design drawings and process flowcharts are encouraged as exhibits. A discussion of each topic is not necessary if the topic is not applicable to the specific project. Questions identified in the Agency's technical review of the project must be answered to the Agency's satisfaction before the application will be approved. The applicant must submit the original technical report plus one copy to the Rural Development State Office. Renewable energy projects with total eligible project costs greater than \$400,000 and for energy efficiency improvement projects with total eligible project costs greater than \$200,000 require the services of a licensed professional engineer (PE) or team of PEs. Depending on the level of engineering required for the specific project or if necessary to ensure public safety, the services of a licensed PE or a team of licensed PEs may be required for smaller projects.

## SECTION 1. BIOENERGY

The technical requirements specified in this section apply to bioenergy projects, which are, as defined in §4280.103, renewable energy systems that produce fuel, thermal energy, or electric power from a biomass source, other than an anaerobic digester project.

(a) *Qualifications of project team.* The bioenergy project team will vary according to the complexity and scale of the project. For engineered systems, the project team should consist of a system designer, a project manager, an equipment supplier, a project engineer, a construction contractor or system installer, and a system operator and maintainer. One individual or entity may serve more than one role. The project team must